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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,640	01/20/2004	Stephen R. Van Doren	200313588-1	9874

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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
CHERY, MARDOCHEE	
ART UNIT	**PAPER NUMBER**
2188	

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/760,640	DOREN ET AL.	
	Examiner	Art Unit	
	Mardochee Chery	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☒ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 01/20/04 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

2. Claims 10 and 14 are objected to because of the following informalities: in line 17 and 19, respectively, "than" should be inserted after –date--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 8 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed "null-directory protocol" was not properly defined and described in the specification. As such the specification lacks the manner and

process of making and using the invention in such full, clear, concise, and exact terms as to enable anyone of ordinary skill in the art to make and use the same.

5. Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed "incomplete protocol" was not properly defined and described in the specification. As such the specification lacks the manner and process of making and using the invention in such full, clear, concise, and exact terms as to enable anyone of ordinary skill in the art to make and use the same.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 13 recites the limitation "the ownership data response" in line 1. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 14 recites the limitation "the system" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Cypher (2004/0002992).

As per claim 1, Cypher discloses a system comprising: a first node having an associated cache including data having an associated first cache state, the first cache state being capable of identifying the first node as being an ordering point for serializing requests from other nodes for the data [pars. 7, 62, and 75].

As per claim 2, Cypher discloses the first cache state enables the first node to provide a data response to a request for the data from a second node for the data without updating a system memory [par. 9].

As per claim 3, Cypher discloses the first cache state enables the first node to provide an ownership data response to a request for the data from a second node, the ownership data response transferring the ordering point from the first node to the

second node [pars. 48 and 68].

As per claim 4, Cypher discloses the first node provides the ownership data response without updating a system memory [pars. 68-69].

As per claim 5, Cypher discloses the first node defines a first processor and the second node defines a second processor, each of the first processor and the second processor having an associated cache, the associated caches of the first and second processors each comprising a plurality of cache lines, each cache line having a respective tag address that identifies associated data and each cache line having state information that indicates a state of the associated data for the respective cache line, the first and second processors being capable of communicating with each other and with other nodes of the system through an interconnect [Fig. 2A; par. 48].

As per claim 6, Cypher discloses a first cache controller associated with the first processor and a second cache controller associated with the second processor, the first cache controller being operative to manage data requests and responses for the associated cache of the first processor, the first cache controller effecting state transitions associated with the data in the associated cache of the first processor based on the data requests and responses for the associated cache of the first processor, the second cache controller being operative to manage data requests and responses for the associated cache of the second processor, the second cache controller effecting state

transitions associated with the data in the associated cache of the second processor based on the data requests and responses for the associated cache of the second processor [Fig. 2A; pars. 7-8, 36].

As per claim 7, Cypher discloses the system implements a hybrid cache coherency protocol wherein each of the first and second processors employs a source broadcast-based protocol to issue a request for the data and employs an associated forward progress protocol to reissue a request for the data if the request fails in the source broadcast protocol [par. 7].

As per claim 8, Cypher discloses the forward progress protocol comprises a null-directory protocol [pars. 32 and 68].

As per claim 9, Cypher discloses the source broadcast protocol comprises an incomplete protocol [par. 7].

As per claim 10, Cypher discloses the first node comprises a cache including a plurality of cache lines, the system being capable of assigning a cache state to each of the cache lines to identify the status of data cached in the cache line, the cache state being selected from the group consisting of: a cache state indicating that the data is not cached in the cache line [par. 52]; a cache state indicating that the data cached in the cache line is valid and unmodified, that other nodes may have valid cached copies of

the data, and that the node associated with the cache line cannot respond to snoops by returning a copy of the data [par. 62]; a cache state indicating that the data cached in the cache line is valid and unmodified, that the data cached in that cache line is the only cached copy of the data in the system, and that the node associated with the cache line can respond to snoops by returning a copy of the data [par. 67]; a cache state indicating that the data cached in the cache line is valid and unmodified, that other nodes may have valid copies of the data, and that the node associated with the cache line can respond to snoops by returning a copy of the data [par. 51]; a cache state indicating that the data cached in the cache line is valid and more up-to-date a copy of the data stored in a system memory, that the data cached in the cache line has not been modified by the node associated with the cache line, that the data cached in the cache line is the only cached copy of the data in the system, that the node associated with the cache line can respond to snoops by returning a copy of the data, and that the node associated with the cache line writes the data back to memory upon displacement [par. 68]; a cache state indicating that the data cached in the cache line is valid and has been modified, that the data cached in the cache line is the only cached copy of the data in the system, that the node associated with the cache line can respond to snoops by returning the data, and that the node associated with the cache line writes the data back to memory upon displacement [par. 69]; a cache state indicating that the data cached in the cache line is valid and more up-to-date than the copy of the data stored in system memory, that the node associated with the cache line cannot modify the data cached in the cache line, that other nodes may have valid copies of the data in the cache line, that

the node associated with the cache line can respond to snoops by returning the data, and that the node associated with the cache line writes the data back to memory upon displacement [par. 71]; and a cache state indicating that the cache line is transitioning between cache states [pars. 51 and 75].

As per claim 11, the rationale in the rejection of claim 1 is herein incorporated.

As per claim 12, the rationale in the rejection of claim 2 is herein incorporated.

As per claim 13, the rationale in the rejection of claim 3 is herein incorporated.

As per claim 14, the rationale in the rejection of claim 10 is herein incorporated.

As per claim 15, the rationale in the rejection of claim 1 is herein incorporated.

As per claim 16, the rationale in the rejection of claim 1 is herein incorporated.

As per claim 17, the rationale in the rejection of claim 2 is herein incorporated.

As per claim 18, the rationale in the rejection of claim 3 is herein incorporated.

As per claim 19, the rationale in the rejection of claims 1 and 3 is herein incorporated.

As per claim 20, the rationale in the rejection of claim 2 is herein incorporated.

As per claim 21, the rationale in the rejection of claim 3 is herein incorporated.

As per claims 22 and 23, the rationale in the rejection of claim 7 is herein incorporated.

As per claim 24, the rationale in the rejection of claim 1 is herein incorporated.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mardochee Chery whose telephone number is (571) 272-4246. The examiner can normally be reached on 8:30A-5:00P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Manonama Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 31, 2006

Mardochee Chery
Examiner
AU 2188

Mano Padmanabhan
4/3/06

MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER